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ABSTRACT

Using data from the National Longitudinal Study of the Class of 1972, a study examined individual and environmental characteristics which predicted occupational turnover in the three-year period after college graduation. Discriminant analysis was used to distinguish determinants of persistence in six occupations. Three were considered to be in the organizational/social realm (teaching, nursing, and social work), and three in the technological realm (computer science, engineering, and accounting). Individual characteristics were found to be most significant in differentiating between groups of persisters and dropouts in social service occupations, while external variables were most significant in determining turnover for the technical professions. Significant differences in turnover were found among the occupational groups. Teachers were found to differ significantly from other occupations on all variables in relationship to turnover. Theoretical and policy implications are discussed. (Author/JD)

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Predicting Occupational Persistence: A Comparison of Teachers and Five Other Occupational Groups

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Predicting Occupational Persistence: A Comparison of Teachers and Five Other Occupational Groups

Using data from the National Longitudinal Study of the Class of 1972, this study examined individual and environmental characteristics which predicted occupational turnover in the three year period after college graduation. Discriminant analysis was used to distinguish determinants of persistence in six occupations--teaching, nursing, social work, accounting, engineering, and computer science. Individual characteristics were found to be most significant in differentiating between groups of persisters and dropouts in social service occupations, while external variables were most significant in determining turnover for the technical professions. Significant differences in turnover were found between the occupational groups. Further, teachers were found to differ significantly from other occupations on all variables in relationship to turnover. Theoretical and policy implications are discussed.

The recent focus on quality of education in the United States has drawn attention to several problems of schooling. Among these concerns is the caliber of individuals attracted to and retained in the teaching profession. The complexity of the problem of attracting and retaining teachers has increasingly motivated researchers to examine the nature of teaching as a career (Gage, 1963; Lortie, 1975), and factors related to satisfaction or dissatisfaction with the career (Chapman, 1982; Charters, 1970; Knopp & O'Reilly, 1978; McArthur, 1980). These writers agree that the high occupational dropout rate of teachers must be curtailed if the quality of the teaching cadre is to improve. Several solutions have been offered to the problem of raising the quality of teaching personnel, and chief among them is retaining capable teachers in the profession (Mark & Anderson, 1978; Watts, 1980).

Few studies can validate the methods to be used to predict the qualities a teacher should have, either to succeed in preparation for teaching, or to persist in the teaching profession. Any investigation of quality in education should consider the issue of why teachers leave the profession (Mark & Anderson, 19778; McArthur, 1980; NEA, 1981; Nelson & Thompson, 1963). Further, because teaching exists within the context of the greater labor force, general labor market functions should also be explored in order to properly understand the problems inherent in teacher turnover. The typical labor market functions of supply and demand do not apply in education, where a uniform salary schedule is used. However, there are similarities to other professions which may illustrate reasons for occupational turnover.

In this study, a comparison was made among six careers. Three were considered to be in the organizational/ social realm (teaching, nursing, and social work), and three in the technological realm (computer science, engineering and accounting). They share such characteristics as amount of preparation, training, field requirements, job expectations, prospective earnings level and time commitment (Bisconti & Solmon, 1977; Clemens, Linden & Shertzer, 1970; Flowers & Hughes, 1973; Hellriegel & White, 1973; Katzell, 1968; Meyer & Cuomo, 1962; O'Reilly & Caldwell, 1981). All show similar levels of turnover in early stages of career growth (O'Reilly & Caldwell, 1981). Using these careers as comparisons, teacher turnover can be investigated in a more relevant contextual background.

Teacher turnover

Teaching has historically lacked commitment from its members, and therefore has been prone to turnover (Pedersen, 1973; Wright & Tuska, 1968; Zeigler, 1967). Presently, 26 percent of graduates in teacher education do not immediately enter teaching, and 60 percent of trained teachers do not remain in teaching for five years (Burlingame, 1979; Geer, 1966). Further, the reasons teachers give for leaving the profession heve traditionally differed from those provided by other professionals (Buchanan, 1974; Farris, 1971; Hall & Schneider, 1972; Hrebiniak & Alutto, 1972; Mobley, 1982; Price, 1977; Reiger, 1972). Specifically, intrinsic factors have reportedly been the impetus for individuals choosing to teach (Bergsma & Chu, 1981; Lasley, 1980; Lowther, Gill, Coppard & Tank, 1983).

There is disagreement concerning the possible positive or negative effects of turnover in all organizations (Dalton & Todor, 1979; Mobley, 1982; Staw, 1980). In schooling it is assumed that the education of pupils will be better in an organization that is characterized by a permanent cadre of career teachers (Stinnett, 1970). Although teacher turnover has usually "been discussed primarily in terms of its retarding effects on teacher professionalization...When schools are organized on the basis of close and continuing staff relationships...turnover becomes a matter of instructional importance" (Lortie, 1973; 479). Teacher turnover may be lucrative for a school district which can pay lower salaries to new teachers than to more experienced ones. It does, however, lower the effective functioning of school systems, and ultimately the quality of learning. Most literature points

to the likelihood of quality instruction emanating from experienced teachers, and reduced turnover will keep these experienced teachers in the classroom (Gardner et al., 1983; Ryan, 1975; Study Commission, 1976).

The purpose of this study was to examine the characteristics of those persons who choose teaching as a career, and to determine the common characteristics of those who persist in the profession in comparison to those who drop out. The research was designed to establish a personal and environmental profile of those who select teaching as a career with the objective of identifying personal traits and environmental circumstances of teachers who persist. This was done in the context of a six-occupation comparison (teachers, nurses, social workers, accountants, engineers, and computer scientists). The first analysis established the distinction between persisters and dropouts from all these professions combined. The second procedure was a specific concentration on characteristics of the professionals in separate groups (social service and technical, as well as each individual profession), using the same analysis. The characteristics, or predictor variables were derived from various organizational research studies across the labor market (Mobley, 1982; Price, 1977).

A second goal of this research was to compare the level of teachers' professional commitment to that of other professionals, specifically those other occupations which require similar investments in preparation, and provide for similar expectations. This comparison was expected to produce generalizable results on which to base professional recommendations for all social service

related occupations.

Research Hypotheses

The following hypotheses were projected:

1. The joint effect of all characteristics or predictor variables (income; supervision style; size of workplace; peer contact; gender; grade point average; aptitude; SES; locus of control; expectancy; job involvement; self-concept; job satisfaction; commmitment; activism; consumerism; political participation; and quality of life) will account for a significant portion of the variation in group membership of persisters and dropouts.

2. Persistence in the teaching profession and variance on the 18 predictor variables are independent.

3. There will be no significant difference between teacher turnover rates and the turnover rates of the other social service occupations surveyed (nursing and social work).

4. Social service occupations will have higher turnover rates than the other professions examined (teachers, nurses and social workers will have higher turnover rates than engineers, computer scientists, and accountants).

Design and Method

Sample Design

The data base used in this study was the National Longitudinal Study of the Class of 1972 (NLS), a survey initiated to provide educators and other researchers with a highly accurate and complete set of data with established reliability and validity to be used in policy analysis. The NLS sampled over 23,000 young adults for a six-year period to determine what happens to young adults after they leave high school, as measured by their experiences, plans, aspirations, and attitudes at various points in time.

The NLS sample design is a deeply stratified two-stage probability sample with schools as first stage sampling units and students within schools as second stage units. The population sampled consisted of all 1972 twelfth graders enrolled in public, private, and church affiliated schools in the fifty states and District of Columbia. A variety of strata were used for school selection. The number of individuals with key data elements for all time points over the six-year period was 16,450, or 73 percent of the cases on the file.

More detailed information regarding the NLS can be found in a series of summaries of the history, methodology, and results of research studies in the past decade (Peng et al., 1977; Riccobono et al., 1981; Taylor, 1981).

Method of data analysis

Subjects. The initial step in analysis was the creation of a subfile from the NLS data. Subjects were chosen from the NLS tapes based on their occupation in October of 1976. Individuals

were coded into occupational groups on the NLS based on responses to these questions. The subfile used in this study included: teachers (kindergarten, elementary, secondary), nurses (R.N.), engineers (all specifications), social workers, accountants, and computer scientists.

A total of 1187 subjects were identified from the 1976 survey. The number of subjects in each professional category were as follows:

Teachers	515
Nurses	235
Social Workers	84
Accountants	197
Computer Scientists	61
Engineers	95

Subjects identified in the 1976 survey were followed through the October 1979 survey. Persisters were those subjects in the same occupation in 1979 that they reported in 1976. Those subjects not in the same occupational classification were classified as dropouts.

Variable Definitions

The variables studied in relation to job turnover can be classified into three general categories: economic, organizational, and individual. Economic variables include the general state of the economy and income level. Organizational factors are defined as variables affecting the individual which are primarily determined by persons or events external to the person's immediate work situation. In this study they include supervisor style, size of workplace and peer contact. Individual variables are the internal or personal characteristics unique to the subject. They include: gender, grade point average (GPA), aptitude, socioecono-

mic status, locus of control, self-concept, expectancy, job involvement, job satisfaction, commitment, activism, consumerism, political participation, and quality of life. These variables have been linked to turnover in a variety of previous studies (Mobley et al., 1978, 1979; Price, 1977).

Items were chosen from the NLS questionnaires to conform to the definition and purpose of this study. Some variables were composed of composite scores created from a number of responses to an item. Composite variables were developed from several sets of items included in the NLS Follow-up questionnaires to provide measures of psychological and social behaviors. Of the eighteen items used in this study, seven were developed on the basis of alpha factor analysis. Their component items and internal consistency coefficients are summarized in the NLS Manual (Riccobono et al.,1981). Other variables were direct or separate factors from NLS. Variables will be described using the descriptive code number from the NLS manual.

Income. Subjects were asked to provide a detailed accounting of their income for the period under study (TQ141AA-FB). Identical questions were provided for 1977, 1978, and 1979. Income reported in the NLS was in raw frequencies, so the data were encoded according to the following ranges: (1) $0 to $3500 (2) $3501 to $7000 (3) $7001 to $12,500 (4) $12,501 to $20,000 (5) $20,001 to $40,000 (6) $40,001 and above.

Supervisor Style. Subjects were asked to indicate the type of supervision they experienced on the job (TQ19).

Size of Workplace. To determine the size of the work setting, each individual was asked to indicate the number of employ-

ees in the organization for which they worked (TQ18A-B).

Peer Contact. The subject indicated amount of peer contact by responding to a question regarding interaction with fellow workers (TQ153B2).

Gender. Gender was one of the composite classifiers created on the NLS files by combining all sources (instruments) of information to produce the best estimate of these classifiers.

Grade Point Average (GPA). Question 1 from the Student Record Information Form (SRIF) of the NLS solicited information concerning the student's average.

Aptitude. A composite index for general aptitude was computed based upon the ETS-developed cognitive tests administered in the base year. Each participant in the NLS who took the base-year tests was given a code of 1, 2, or 3 depending upon whether his aptitude composite was in the lower, middle two, or upper quartile range of the observed scores.

SES Index. Each participant in the NLS was also assigned a code of 1, 2, or 3 depending on whether his SES composite score was in the lower, middle two, or upper quartile range.

Locus of Control. The locus of control scale involves four items which were carefully chosen by previous re-searchers. The scale is that developed for the Coleman Report (Coleman et al., 1966).

Expectancy. A composite score was created for the expectancy variable by asking subjects their response to questions regarding future plans for work (SQ141A-J).

Job Involvement. A composite score of two items was created

to measure degree of job involvement (TQ141 and SQ141G).

Self-Concept. The self-concept scale is based on Rosenberg's self-esteem scale (Rosenberg, 1965) of personal assessment (SQ142).

Job Satisfaction. This variable was a composite score. Subjects were asked to respond to a question (TQ21A-K), indicating their satisfaction with aspects of their job.

Commitment. Subjects were asked to project their future occupation, or their intent to be employed in a certain occupation, when they reach 30 years of age (TQ44). The responses to the preceding questions were matched to the professional categories in which the subject worked in 1976 and commitment was encoded as (1) if the subject did intend to be in the same profession at age 30 or (2) if the subject did not intend to be in the same professional category at age 30.

Activism. Subjects were asked to respond to a question (TQ147A-M) measuring the extent of participation in political and social groups.

Consumerism. Subjects expressed their behavior as consumers by responding to questions regarding their buying habits (SQ133A-F).

Political Participation. A composite score was derived from subjects' answers to a series of questions regarding their political activities (TQ153A-H).

Quality of Life. Subjects were asked to respond on a five-point scale indicating the importance of certain factors of comfort in their lives (SQ135A-K).

Model

Adequate prediction and understanding of turnover requires the examination of multiple variables in the analysis (Mobley et al., 1979; Price, 1977). A few theories have been conceptualized which include a broad view of all the factors involved in turnover. The conceptual framework for the present study was derived from such integrative multivariate research models (Mobley, 1982; Mobley, Griffeth, Hand & Meglino, 1979).

The research model which is the conceptual basis for this study is presented in Figure 1. It is a comprehensive model of turnover based upon individual variables as well as perceptions of organizational and economic factors. The model incorporates elements of the preceding models and attempts to capture the overall complexity of the turnover process. It calls attention to the fact that satisfaction, future expectations, and both work and nonwork values must be diagnosed if turnover is to be understood and studied.

The present research model conforms to the variables considered by Mobley (1982), with certain exceptions. First, the model progresses from general determinants to more influential determinants, indicating an additive effect of variables. The organizational and environmental variables external to the individual are termed contextual variables. That is, they are the context in which the individual functions. Second, the influence of the contextual variables is to limit the range or power of the individual variables in the turnover decision.

Finally, the individual and internal factors are the real force determining turnover. Although contextual variables im-

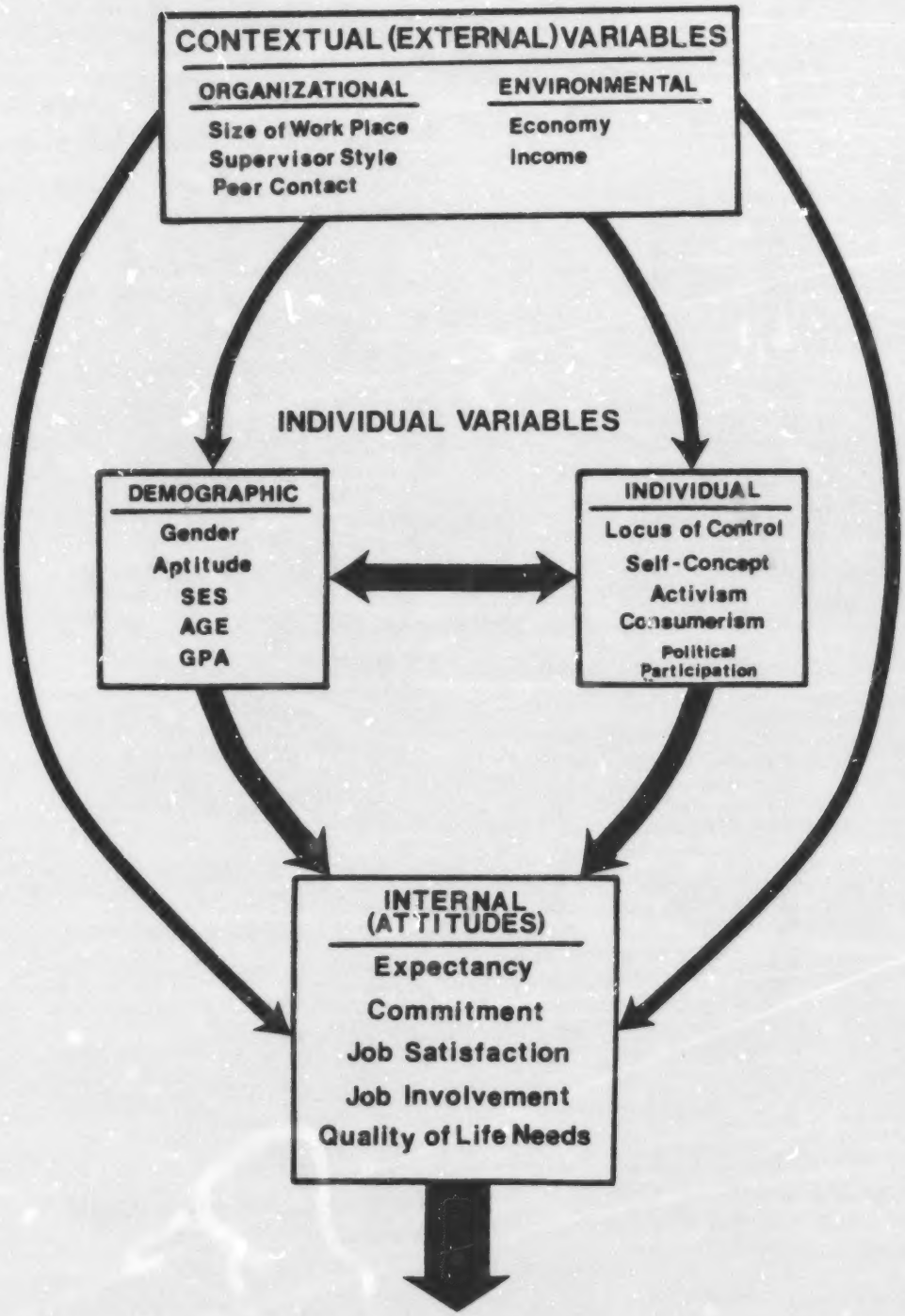

Figure 1: Present Model of Turnover Phenomenon.

pinge on the outcomes, the internal variables are the final determinant in the decision to leave. Although this model is not as comprehensive as certain previous models, the analysis employed here used a longitudinal data base, multivariate methods, and concentration on individual characteristics which have been shown to be useful in a predictive function.

Procedure

The SPSS program for discriminant analysis (Klecka, 1975) was employed to test the first hypothesis, that the variables predict group membership of persisters and dropouts. In this study, discriminant analysis was used to describe the differences between persisters and dropouts on the eighteen predictor variables.

Because it was anticipated that teachers would differ from the other professions examined, several discriminant analyses were performed using the cohort from each profession in the sample. A preliminary examination of hypothesis two was possible through the correlation coefficients generated for each of the variables with teaching, as well as the five other professions. The most interpretable results were provided by chi square analyses for each variable with teacher persisters and dropouts.

To test hypotheses three and four, the differences between groups of the six professions were explored using chi square analyses. Separate chi square analyses were performed for the combined groups (social service and technical), as well as comparisons of teachers with the other professional groups.

Results

Descriptive Findings

Some descriptive findings are necessary to accurately interpret the data. Discriminant analysis applied in this study did distinguish between those who leave a profession and those who stay, although the correlations tend to be moderate. The highest correlations for the entire sample were found for SES (.54, $p<.05$). Other variables were more highly correlated for individual occupations, most notably those for teachers. Certain patterns were evident among variables which distinguished between dropouts and persisters in separate professions. Given the exploratory nature of this study, these trends, while possibly not generalizable to other occupations, do suggest hypotheses for further study.

There is an unequal distribution of gender in the occupations that were compared. Table 1 shows the number of individuals in each profession by gender. These numbers reflect the typical national averages for these professions (Mobley, 1982). For example, the gender balance for teaching reflects the national norms, with 78 percent female, and 22 percent male (the national average is 70 percent female, 30 percent male). Table 2 describes the sample of teachers by school level and gender. Elementary teachers are a primarily female, and the secondary teachers have a more even gender distribution.

The amount of turnover by occupations clearly does not follow trends hypothesized in this study. Table 3 shows a low degree of turnover for nursing (15 percent) and high turnover for

TABLE 1

Gender Distribution of Subjects in the Six Professional Groups Under Study (N=1187)

PROFESSION	Male (With	Female percent of entire	Total group)
ACCOUNTANTS (N = 197)	89 (7.6)	102 (9.3)	191 (16.9)
COMPUTER SCIENTISTS (N = 61)	41 (2.8)	17 (1.5)	58 (4.3)
ENGINEERS (N = 95)	93 (8.6)	2 (0.2)	95 (8.8)
NURSES (N = 235)	6 (0.3)	224 (20.0)	230 (20.4)
SOCIAL WORKERS (N = 80)	34 (2.9)	46 (3.9)	80 (6.8)
TEACHERS (N = 515)	109 (9.4)	392 (33.4)	503 (42.8)
TOTAL			1157 (100)

Number of Missing Observations = 30

Chi-Square = 11.77
$p < .05$

TABLE 2

Areas of Concentration and Gender of Teachers
(N = 515)

	GENDER		
CONCENTRATION AREA	Male	Female	Total
ELEMENTARY	39 (7.9%)	206 (41.0%)	246 (48.9%)
SECONDARY	70 (14.1%)	186 (37.0%)	257 (51.1%)
TOTALS	109 (22.0)	392 (78.0)	503 (100)

Number of Missing Observations = 12

Chi-Square = 2.85
$p < .05$

TABLE 3

Comparative Amounts of Persistence and Dropout
by Professional Categories (in percentage)
(N = 1187)

PROFESSION	PERSISTERS	DROPOUTS
NURSES (N=235)	85	15
TEACHERS (N=515)	65	35
ENGINEERS (N=95)	61	39
COMPUTER SCIENTISTS (N=61)	52	48
ACCOUNTANTS (N=197)	46	54
SOCIAL WORKERS (N=80)	26	74

Chi Square = 12.3
$p < .05$

social service (74 percent). The three technical occupations fall between 39 and 54 percent, while teaching was 35 percent ($p < .05$), which was significantly lower than the technical occupations as a group.

In summary, the sample derived from the NLS data base appeared to reflect national demographic norms. Distribution of gender appears normal for these occupations (NEA,1979). The amount of turnover in these data reflect the high rate of job leaving that occurs early in career development.

Distinguishing Persisters from Dropouts

The results of the discriminant analyses are reported in Tables 4 through 6. The nature of differences between persisters and dropouts is explained throughout this study from an examination of the magnitude of the correlation between the canonical discriminant function (persistence or non-persistence) and the discriminating variables. While it was the set of variables acting together that produced the difference among groups, those with the largest correlations were considered to be contributing the most to these differences for purposes of interpretation.

The results of the first discriminant analysis tests the predictive ability of the 18 variables on turnover. The combined effect of the 18 variables does discriminate between persisters and dropouts ($p < .01$), confirming Hypothesis One.

The correlations between the canonical discriminant functions and the variables are reported in Table 4, first for all occupations combined then for the technical occupations (accountants, computer scientists, and engineers) and social service occupations (nurses, social workers, and teachers). Most note-

TABLE 4

CORRELATION COEFFICIENTS BETWEEN PREDICTOR VARIABLES AND DISCRIMINANT FUNCTION (PERSISTENCE)

N = 1187

VARIABLE	ALL PROFESSIONS	SOCIAL SERVICE PROFESSIONS	TECHNICAL PROFESSIONS
INCOME	.18	.27	.32*
SUPERVISOR STYLE	-.005	.14	-.05
SIZE OF WORKPLACE	.08	.18	.08
PEER CONTACT	-.08	.07	.19
GENDER	-.20	-.18	-.18
GRADE AVERAGE	-.16	-.22	-.26
APTITUDE	-.21	-.14	-.27
SES	.54**	.54**	.14
LOCUS OF CONTROL	.46**	.49**	.22
EXPECTANCY	.19	.40*	-.13
JOB INVOLVEMENT	.16	.31*	-.04
SELF CONCEPT	.46**	.49**	.22
JOB SATISFACTION	.14	.32*	-.08
COMMITMENT	.25*	.36*	.09
ACTIVISM	.36*	.45**	.05
CONSUMERISM	.34*	.30	.27
POLITICAL PARTICIPATION	.12	.28	-.05
QUALITY OF LIFE NEEDS	.35*	.34	.19
Chi-square	34.70	28.70	14.90
Grouped	p< .01	p< .05	p< .59
% Correctly Classified	63%	70%	56%

* p< .05 ** p< .01

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worthy in the combined groups analysis is the distinction between the first six variables, which are internal or individual variables (SES, locus of control, self-concept, activism, quality of life needs, and commitment), compared to the variables with the least predictive function, which are external factors (peer contact, size of workplace, supervisor style).

These findings indicate a moderate trend in support of the present model of turnover. However, when the sample was divided into technical and social service occupations, a different profile emerged. Table 4 illustrates the distinction between these two groups. Most notable is the concentration of internal variables (SES, locus of control, self-concept, activism, expectancy, commitment, and quality of life needs) at the top of the list for social service occupations, with significant correlations ($p < .05$). Compare this to the technical professions which show one external determinant as strongest, income ($p < .05$).

Some of the differences in occupations appeared to be critical and in support of the present model. Therefore, a second series of discriminant analyses were performed including only those variables which seemed to distinguish best between persisters and non-persisters. The variables were also selected to reflect the categories at the extreme ends of the present model of turnover which were contextual (external) variables and attitude (internal) variables. This abbreviated model contained nine variables: income, supervisor style, size of workplace, peer contact, expectancy, job involvement, job satisfaction, commitment, and quality of life needs.

The results of the second series of discriminant analyses

are reported in Table 5, first for all occupations and then the technical and social service divisions. This yielded a stronger and more distinct correlation for the entire group. Now, the commitment variable ranks first (.69, $p < .05$), followed by two other internal variables, quality of life needs (.48, $p < .05$) and expectancy (.38, $p < .05$).

Social service occupations have the highest correlations with commitment (.68), expectancy (.62), job satisfaction (.54), and job involvement(.53), all at the .05 level of significance. These were the four internal characteristics predicted by the model to figure most strongly in turnover. The technical professions show almost the reverse pattern. Their most significant factors are external or demographic, income figuring most strongly in distinguishing between persisters and dropouts in this group (.54, $p < .05$).

Clearly the ability of these nine variables is sufficient to distinguish between persisters and dropouts at a significant level. When compared by occupational classification, results indicate there are differences between the occupations. To investigate the possible reasons for these differences, a final series of discriminant analyses was performed on each of the occupations included in the study, using the nine internal and external variables to establish profiles of variable correlations which distinguish turnover in the respective occupations. Table 6 shows these results.

Nursing has the highest loading (.77, $p < .01$) of all the groups on size of workplace. Engineers' only significant vari-

TABLE 5

Canonical Correlation Coefficients Between
Nine Predictor Variables and Persistence
N = 1187

VARIABLE	ALL SUBJECTS (N= 1187)	SOCIAL SERVICE (N= 830)	TECHNICAL (N= 353)
INCOME	.35	.45	.54*
SUPERVISOR STYLE	.008	.25	-.09
SIZE OF WORKPLACE	.16	.30	.14
PEER CONTACT	.17	.12	.33
EXPECTANCY	.38	.62*	-.22
JOB INVOLVEMENT	.31	.53*	.07
JOB SATISFACTION	.27	.54*	-.13
COMMITMENT	.69*	.68*	.15
QUALITY OF LIFE	.49*	.58*	.32
* p< .05			
Grouped Chi-square	8.91	9.99	5.40
Significance	.05	.10	.10
% Correctly Classified	62%	70%	56%

TABLE 6

Comparison of Individual Professions on Magnitude of Canonical Correlation Loadings on Nine Internal and External Variables.
N =1187

VARIABLE	ACCOUNTANTS (N-197)	COMPUTER SCIENTISTS (N-61)	ENGINEERS (N-95)	NURSES (N-235)	SOCIAL WORKERS (N-80)	TEACHERS (N-515)
INCOME	.43	.28	-.02	.33	.48*	.15
SUPERVISOR STYLE	-.01	.16	.22	.20	.33	-.005
SIZE OF WORKPLACE	-.000	-.002	-.05	.77**	.07	-.32
PEER CONTACT	.42	.23	.14	.28	.37	-.06
EXPECTANCY	-.15	-.04	.27	.32	.06	.35*
JOB INVOLVEMENT	-.03	-.01	.24	.08	-.10	.43*
JOB SATISFACTION	-.18	-.02	.67*	.14	.34	.27
COMMITMENT	-.13	-.32	-.13	.08	.37	.44*
QUALITY OF LIFE	.37	.20	-.07	-.24	.24	.64**

* p< .05
** p< .01

able is job satisfaction (.67, $p < .05$) while social workers have the highest loading (.48, $p < .05$) on income. Teaching yields a number of significant loadings on internal variables (quality of life, .64, $p < .01$; commitment, .44, $p < .05$; job involvement, .43, $p < .05$; expectancy, .35, $p < .05$), while all other professions show more significant loadings on external factors (income).

Teacher Descriptions

A series of chi-square analyses was performed to test the relationship between persistence in teaching and the 18 variables used in Hypothesis Two (See Table 7). The results summarized in Table 7 indicate the direction of relationship of the variables to teacher persistence. These findings indicate rejection of the second null hypothesis for 12 of the 18 variables. Discriminant analysis of the data on teachers as a group suggests reasons for turnover in this group (See Table 6). Quality of life needs is the variable with highest loadings (.64, $p < .01$), followed by commitment (.44, $p < .05$), job involvement (.43, $p < .05$), and expectancy (.35, $p < .05$). Of note in these results is that the significant correlations are all on internal variables, especially when compared to the other social service occupations. Nurses' first component is size of workplace (.77, $p < .05$), followed by income (.43, $p < .05$), while social workers rank income first (.48, $p < .05$).

Group Comparisons

A comparative ranking of professions by amount of turnover (lowest percent to highest percent) in the first three years of employment is as follows:

Occupation	Amount of Turnover
Nurses	15%
Teachers	35%
Engineers	39%
Computer Scientists	48%
Accountants	54%
Social Workers	74%

The grouping of social or helping professions was projected to create a homogeneous classification. This is far from true, as both the group with the highest persistence (nurses) and the group with the lowest persistence (social workers) are included under this heading.

Table 8 shows the results of chi square testing of Hypothesis Two for the three occupations. There is a significant difference among these groups, and the null hypothesis is rejected. Table 6 also illustrates these differences, not only in amount of turnover, but in the determinants of that turnover.

The combined results for the two groupings of occupations is shown in Table 9. Technical occupations have 49 percent turnover rate while social service occupations have a rate of 33 percent ($p<.05$). The fourth hypothesis is disconfirmed.

Socioeconomic status was shown to be a significant determinant of turnover when considering the entire group on all variables. To test the function of SES in this sample, a chi square test was performed. Table 10 reflects the results of an SES-by-profession examination. Occupations with higher SES indices appear to have greater amounts of turnover (i.e., Computer science with 48 percent turnover shows 49 percent high SES index, while nurses with 15 percent turnover have only 29 percent of their ranks drawn from high SES [$p< .05$]). Similar relationships

between SES and turnover exist for each of the other professions.

A further exploratory finding of this study was the effects of gender differences across professions as revealed in amount of turnover. Table 11 indicates the amount of turnover by professional groups and gender. While the average percentage of turnover for males was 53 percent, the amount for females was 47 percent ($p < .10$). Although the effect is not significant, it is noted for projections for future research.

An analysis was performed to investigate the strongest loading variable, commitment, from the discriminant analysis phase. Table 12 shows results for both 1976 responses and 1979 responses to the question of subjects' occupational intent. The commitment responses were much higher in 1976 than those in 1979 (ranging from 62 percent to 92 percent in 1976, and 59 percent to 89 percent in 1979). Further, when these predictions are compared with actual turnover percentages, another trend emerges. The proportion of respondents who correctly predicted their turnover in 1976 is much higher for technical than for social service occupations. For example, of computer scientists who had 48 percent turnover, 34 percent correctly predicted that turnover when they began (i.e., 73 percent were accurate in their commitment estimates). Social workers, on the other hand, had 74 percent turnover, while only 32 percent anticipated leaving the profession (i.e., only 35 percent were correct in their estimates).

The misfit between actual turnover and level of commitment shows a disparity between social service and technical occupations. Less than 25 percent of the social service occupations

predicted they would leave. That is, their expressed commitment was much higher than their actual persistence. While the technical occupations showed a lower degree of commitment, they also seemed to have a more realistic concept of what their persistence behavior would be.

TABLE 7

Summary of Chi-square Results Showing Variables Associated with Teacher Persistence

Low Income
*Low-control Supervisor Style
**Small (100 workers or less) Size of Workplace
High Peer Contact
**Gender (Females more likely to stay than Males)
*Medium to low Grade Average
*Mid-range Aptitude
Mid-range SES
**Internal Locus of Control
*High Expectancy
**High Job Involvement
*High Self-concept
**Low Job Satisfaction
**High Level of Commitment
High Activism
High Consumerism
High Political Participation
*High Quality of Life Needs

*p< .05 **p< .01

TABLE 8

Comparative Turnover Rates for Teachers, Nurses, and Social Workers
N = 830

	NURSES (N=235)	SOCIAL WORKERS (N=80)	TEACHERS (N=515)
PERSISTERS	200 (85.1%)	21 (26.3%)	337 (65.4%)
DROPOUTS	35 (14.9%)	59 (73.8%)	178 (34.6%)

Chi-Square = 95.82
$p < .05$

TABLE 9

PERSISTERS AND DROPOUTS IN TECHNICAL AND SOCIAL SERVICE OCCUPATIONS
(Number of subjects and Percent of Group)
N = 1183

	TECHNICAL OCCUPATIONS	SOCIAL SERVICE OCCUPATIONS	TOTAL
PERSISTERS	181 (51.3%)	558 (67.2%)	739 (62.5%)
DROPOUTS	172 (48.7%)	272 (32.8%)	444 (37.5%)
TOTAL	353 (29.8%)	830 (70.2%)	1183 (100%)

Number of Missing Observations = 4

Chi Square = 2.62
$p < .05$

TABLE 10

Comparative SES Indices for the Six Professional Groups
(Number of subjects in each cell, percent of group represented)
N = 1176

SES INDEX	PROFESSION						TOTALS
	ACCOUNTANTS	COMPUTER SCIENTISTS	ENGINEERS	NURSES	SOCIAL WORKERS	TEACHERS	ALL PROFESSIONS
LOW	25 (12.8%)	8 (13.6%)	10 (10.5%)	31 (13.2%)	20 (25.0%)	77 (15.1%)	171 (14.5%)
MEDIUM	99 (50.5%)	24 (40.7%)	47 (49.5%)	134 (57.0%)	34 (42.5%)	252 (49.3%)	590 (50.2%)
HIGH	72 (36.7%)	27 (45.8%)	38 (40.0%)	70 (29.8%)	26 (32.5%)	182 (35.6%)	415 (35.3%)

Number of Missing Observations = 11

Chi-Square = 18.5
$p < .05$

TABLE 11

Gender of Persisters and Dropouts from Total Sample
(Number of Subjects and Percent of Total Sample)
n = 1157

	MALES	FEMALES	TOTAL
PERSISTERS	172 (46.9%)	417 (52.7%)	589 (50.9%)
DROPOUTS	194 (53.1%)	374 (47.3%)	568 (49.1%)
TOTAL	366 (31.5%)	791 (68.5%)	1157 (100%)

Number of Missing Observations = 30

Chi-Square = 2.29
$p < .10$

TABLE 12

Commitment Levels by Professions in 1976 and 1979
Compared to Actual Turnover Amounts
N = 1161

PROFESSION	NUMBER INTENDING TO BE IN PROFESSION AT AGE 30 1976 RESPONSE	1979 RESPONSE	ACTUAL PERSISTENCE	PERCENT CORRECTLY ESTIMATING TURNOVER
				(In Percent)
ACCOUNTANTS (N=197)	128 (66.0%)	110 (59.5%)	46%	63%
COMPUTER SCIENTISTS (N=61)	37 (61.7%)	35 (60.3%)	52%	79%
ENGINEERS (N=95)	72 (77.4%)	62 (68.9%)	61%	59%
NURSES (N=235)	212 (92.2%)	199 (89.6%)	85%	60%
SOCIAL WORKERS (N=80)	53 (67.9%)	50 (65.8%)	26%	39%
TEACHERS (N=515)	427 (84.4%)	351 (71.3%)	65%	42%

Number of Missing Observations = 26

Chi Square = 18.344
p< .05

Discussion

The analyses supported the primary research hypothesis, separating persisters from dropouts using the predictor variables discussed in this study. Because it was only able to classify 63 percent of the respondents on a cross-validation, a somewhat better percentage would be necessary before using this model for counseling purposes.

This study also projected differences in persistence among occupational groups because of the type of work performed. Results reported for these two groups considered merely in general classifications indicate that the research assumption was correct. The social service occupations do have distinctly higher loadings on internal variables and the technical occupations load higher on external variables. Findings supported the present model of turnover, indicating that social service occupations conform more closely to the internal model.

Predicting turnover for Individual Occupations

Results of the second series of analyses showed that with the exception of teaching, all the occupations indicate highest concern with external factors. Teachers highest correlation loadings were on quality of life needs, commitment, and expectancy, three of the internal factors classified by the present model. The determinants of persistence or turnover for the five other professions were extrinsic factors: for nursing it was size of workplace; for social workers, accountants and computer scientists the strongest determinant was income; and for engineers the determinant was job satisfaction. The separation of

these occupational groups on determinants of persistence or turnover indicates that factors other than income are involved.

One of the most logical explanations for these results comes from the present state of the economy and labor supply and demand factors. During the period under analysis (1976-1979), the state of the economy was in a state of decline (Muchinsky & Morrow, 1980). While technical personnel were in very high demand during this period, demand for social service personnel, especially teachers, was low (NEA, 1980). A possible explanation for the high turnover rate for technical professions, despite good salary levels, is opportunity (Mobley et al., 1979; Muchinsky & Morrow, 1980).

A labor market explanation of the variables that are related to turnover seems most reasonable for the five occupations examined. For teachers, however, other factors seem to be at work. Unlike members of the other occupations, teachers do not have significant loadings on income level as a turnover determinant. What may be indicated by these results is that the tight job market for teachers during this period limited alternative job opportunities and prompted greater persistence. Lack of alternative opportunities underscored the need of respondents to find more internal aspects of the job as reasons for staying.

A conclusion that may be drawn from income-related factors is that market conditions have a selective controlling effect on occupations. For the teaching profession where salary structures are fixed, labor market conditions do not apply as directly to the turnover decision as they do in other occupations. Results indicate that not only is the motivation for leaving different

among occupations but the distinction may lie in the initial motivation for choosing the respective occupation. The explanations for particular group differences may be the discrepancies between income levels of the jobs and the motivation which brings individuals to these professions (Marsh & Manneri, 1977; Price, 1977; Porter & Steers, 1973). The present research conclusion is that income levels are more important to individuals who choose these higher paying occupations than for individuals who choose lower paying jobs. Determining whether this is a cause or effect of the job choice is a topic for future research.

Teacher Persistence

Teachers were distinct from the other occupations on a number of internal variables. The immediate conclusion drawn from the data is that teachers are indeed motivated to persist in their profession by intrinsic rewards.

External variables and persistence

Income, Table 13. The job market for teachers was very tight during the period under study. Supply exceeded demand by 10 to 30 percent depending on area of specialization (NEA, 1981), which possibly curtailed the normal mobility of teachers. The income level of teachers was in the average range (approximately $8000 per year), while in comparison to other professions, teachers' salaries have a guaranteed increment each year, promoting some level of satisfaction.

Supervisor Style, Table 14. Most teachers are their own bosses, feeling they have the freedom to design and implement their own plans. These findings reflect the reported satisfaction of teachers who feel they are trusted to perform indepen-

Table 13.

Number of Teacher Persisters and Dropouts by 1979 Earnings Level
N = 515

	LOW ($0-3500)	MED.LOW ($3501-7000)	MEDIUM ($7001-12,500)	MED. HIGH ($12,500-20,000)	HIGH ($20,001-40,000)
PERSISTERS	84 (17.4%)	83 (17.1%)	97 (20.0%)	44 (9.1%)	10 (2.1%)
DROPOUTS	57 (11.8%)	51 (10.5%)	38 (7.9%)	16 (3.3%)	4 (0.8%)

Number of Missing Observations = 27
Chi-square = 7.21
p< .12

Table 14.

Number of Teacher Persisters and Dropouts
by Type of Supervision
N = 515

	TYPE OF SUPERVISOR STYLE/AMOUNT OF CONTROL OVER WHAT EMPLOYEE DID AND HOW THEY DID IT				
	High	Med.High	Med.Low	Low	No Supervisor
PERSISTERS	3 (0.6%)	34 (6.7%)	92 (18.3%)	190 (37.7%)	11 (2.2%)
DROPOUTS	11 (2.2%)	26 (5.2%)	43 (8.5%)	82 (16.3%)	12 (2.4%)

Number of Missing Observations = 11
Chi-square = 19.9
p< .05

dently and are mutually influential with their principal (supervisor).

Size of workplace, Table 15. Size of school system seemed to contribute to the decision to stay for teachers. For schools with fewer than 100 teachers there is a significant relationship between persistence and size. This would indicate support for a white-collar application of Price's (1977) conclusions regarding the correlation between larger size of workplace, lower group cohesiveness and poorer communications. It seems to refute the idea that higher salary levels of larger schools would make them more attractive.

Peer contact, Table 16. Size of workplace was not related to a similar variable, peer contact. As an independent agent, it seems that teachers rarely interact with fellow-workers and that peer contact is not a significant factor in the turnover process. The reason is most likely a simple matter of time; teachers typically spend the majority of their workday time with their students and their spare time in preparation for teaching.

Individual Variables and Teacher Persistence

Consistent with the hypothesized relationship, internal variables contribute most to determining who will persist in teaching. Although persisters and dropouts were not at extremes on variables, there were significant differences on most of the internal variables. General findings on internal variables lend support to Lasley (1980) who concluded that internal factors may be the key to distinguishing who will persist in teaching. Although critics indicate that altruistic reasons for entering teaching may be unrealistic, the present study finds that these

Table 15.

Number of Teacher Persisters and Dropouts
by Size of Workplace Variable
N = 515

	SIZE OF WORKPLACE						
	Work Alone	10 or Less	10-99	100-499	500-999	1000-2,499	2,500+
PERSISTERS	5 (1.0%)	29 (6.0%)	134 (27.9%)	82 (17.0%)	18 (3.7%)	20 (4.2%)	24 (5.0%)
DROPOUTS	5 (1.0%)	18 (3.7%)	80 (16.0%)	29 (6.0%)	16 (3.3%)	2 (0.4%)	19 (4.0%)

Number of Missing Observations = 34
Chi-square = 15.82
$p < .05$

Table 16.

Number of Teacher Persisters and Dropouts
by Peer Contact Variable
N = 515

	Frequency of Contact with Fellow Workers		
	Frequent	Occasionally	Never
PERSISTERS	77 (18.2%)	193 (45.6%)	6 (1.4%)
DROPOUTS	55 (13.0%)	88 (20.8%)	4 (0.9%)

Number of Missing Observations = 92
Chi-square = 4.36
p< .11

internal factors do distinguish between teacher persisters and dropouts. This supports various findings regarding the intrinsic reward factors which motivate teachers (Bergsma & Chu, 1981; Lowther, Gill, Coppard & Tank, 1983).

Gender, Table 17. The sample is an accurate reflection of the teaching population in terms of gender, areas of discipline, and persistence. Males were found more likely to leave teaching in the first three years of employment than were females. This is contrary to the predicted patterns of this study and of Charters (1970), where more females leave the job at an early stage. One explanation of this is the increasing postponed childbearing that has become the trend. Evident here is the almost even amount of turnover for both genders, indicating that women don't leave teaching more than men at this stage. If consistent with past statistics a good portion of the women who leave will return to teaching after five to ten years, while the men do not return (NEA, 1981). Female turnover rate could then be considered quite a bit lower than the turnover rate for males.

Grade point average, Table 18. Teachers rank in the low to middle range in grade point average, and the statistics would indicate that better grade averages are not indicative of greater persistence. While supporting findings concerning low achievement levels of individuals who choose teaching as a career, it also lends some support to the findings which indicate that those who persist in teaching are the individuals with limited opportunities. Those with higher levels of ability seem to leave for better positions.

Aptitude, Table 19. When compared on aptitude, the teaching

Table 17.

Number of Teacher Persisters and Dropout
by Gender
N = 515

	MALE	FEMALE
PERSISTERS	54 (10.8%)	266 (53.0%)
DROPOUTS	56 (11.1%)	126 (25.1%)

Number of Missing Observations = 12
Chi-square = 8.52
p< .005

Table 18.

Number of Teacher Persisters and Dropouts
by Grade Average
N = 515

	GRADE AVERAGE			
	A	B	C	D OR BELOW
PERSISTERS	49 (9.9%)	145 (28.8%)	109 (21.5%)	20 (4.0%)
DROPOUTS	26 (5.1%)	49 (17.9%)	58 (11.3%)	4 (1.5%)

Number of Missing Observations = 10
Chi-Square = 7.87
$p < .05$

Table 19.

Number of Teacher Persisters and Dropouts
by Aptitude Variable
N = 515

	APTITUDE RATING		
	Low	Medium	High
PERSISTERS	12 (3.4%)	116 (32.6%)	99 (27.8%)
DROPOUTS	18 (5.1%)	62 (17.4%)	49 (13.8%)

Number of Missing Observations = 159
Chi-square = 8.11
$p < .05$

group emerged at medium to high levels, indicating some discrepancy between ability and grade achievement. It may also reflect the "second choice" phenomenon, where teaching is chosen after an individual is blocked in another career path.

SES, Table 20. Chi square analysis showed that teachers are of middle (49%) to upper (36%) SES classifications, lending some support to Brown's (1980) conclusion that there is motivation for upward mobility in middle class individuals and that teaching is one avenue. The individuals' classification on SES seem to place more in upper than lower (15%) SES. Findings indicate that the upper SES respondents are more often turnover statistics. Lyson and Falk (1984), using the same data base, concluded that those with wider options did not enter teaching. Possibly those from higher SES levels who do enter teaching are more likely to turn over.

Locus of control, Table 21. In examining the personality characteristics of teachers other significant data emerged. Teacher persisters ranked significantly high on Internal classification of locus of control. That is, teachers consider themselves to be in control of and responsible for shaping the events in their lives. This is consistent with the Runyon (1973) and Fox and Peck (1978) findings regarding supervisor style which indicate that teachers have control over their work and are able (as Internals) to function best with less directive leadership. These results also support projections of these findings that Internals remain on the job where they have participatory management.

Expectancy, Table 22. Results indicate that teacher persis-

Table 20.

Number of Teacher Persisters and Dropouts
by Socioeconomic Status Variable
N = 515

	SES CLASSIFICATION		
	Low	Medium	High
PERSISTERS	45 (8.8%)	165 (32.3%)	127 (24.9%)
DROPOUTS	32 (6.3%)	87 (17.0%)	55 (10.8%)

Number of Missing Observations = 5
Chi-Square = 3.14
p< .20

Table 21.

Number of Teacher Persisters and Dropouts
by Locus of Control Variable
N = 515

	LOCUS OF CONTROL RANGE				
	External (1)	(2)	(3)	(4)	Internal (5)
PERSISTERS	0	2 (0.4%)	25 (4.9%)	172 (33.9%)	135 (26.6%)
DROPOUTS	0	1 (0.2%)	25 (4.9%)	98 (19.3%)	49 (9.7%)

Number of Missing Observations = 8
Chi-Square = 10.77
p< .01

Table 22.

Number of Teacher Persisters and Dropouts
by Expectancy Variable
N = 515

	CONGRUENCY OF EXPECTATIONS WITH JOB CHARACTERISTICS		
	High	Medium	Low
PERSISTERS	247 (48.9%)	70 (13.9%)	15 (3.0%)
DROPOUTS	49 (9.7%)	110 (21.85)	14 (2.8%)

Number of Missing Observations = 10
Chi-Square = 6.94
p< .05

ters have a high degree of congruency of job expectancy and reality of job experience. This cadre of teachers conforms to the findings of Ilgin and Seely (1974), Louis (1980), and Wanous (1977) who concluded that realistic expectations aid in reducing turnover. Unlike the Wanous findings, this group did not seem to have inflated expectations; their expectations were quite consistent with the realities of the job. This result also seems to be contrary to Thompson et al. (1983) and Wright and Tuska (1968) who feel that teaching and preparation for teaching are not congruent. Perhaps there has been an advent of realism in teacher training; or perhaps what has come to be a common public perception about a very visible profession is also becoming accepted by those who enter the profession.

Job involvement, Table 23. Teacher persisters are very highly job involved. If interpreted as Runyon (1973) suggests, this is a function of the Internal locus of control dimension of teachers' personalities, and consistent with present findings on locus of control. These findings are somewhat consistent also with Knoop and O'Reilly's (1978) study which indicates that teachers' job involvement is dependent on job satisfaction (which was very low in this study), marital status (most were single) and satisfaction with supervisor (high). The findings do suggest that job involvement is one important factor distinguishing persisters from dropouts in teaching.

Self-concept, Table 24. Self-concept was another significant factor for teacher persisters. Most teachers were in medium to high categories of self-concept. Few conclusions can be drawn from this finding out of context of all the other internal fac-

Table 23.

Number of Teacher Persisters and Dropouts
by Job Involvement Variable
N = 515

	LEVEL OF JOB INVOLVEMENT		
	High	Medium	Low
PERSISTERS	297 (58.7%)	36 (7.1%)	0
DROPOUTS	140 (27.7%)	30 (5.9%)	3 (0.6%)

Number of Missing Observations = 9
Chi-Square = 10.39
p< .005

Table 24.

Number of Teacher Persisters and Dropouts
by Self-Concept Variable
N = 515

	SELF-CONCEPT CLASSIFICATION				
	High	Med.High	Medium	Med.Low	Low
PERSISTERS	149 (29.4%)	170 (33.5%)	13 (2.6%)	2 (0.4%)	0
DROPOUTS	67 (13.2%)	87 (17.2%)	17 (3.4%)	2 (0.4%)	0

Number of Missing Observations = 9
Chi-Square = 8.16
$p < .05$

tors, except that teachers seem to be more confident and independent than previously portrayed. The work behavior of such high self-concept individuals would moderate job satisfaction and other work behavior. The high level of locus of control and job involvement would indicate that there is a congruency between self-concept, occupational choice, and satisfaction among teachers.

Job satisfaction, Table 25. Teachers were significantly dissatisfied with factors of their job, indicating that job satisfaction is not related to turnover in this instance. An explanation of this phenomenon might be that the limited mobility of the period and lack of job opportunities curtailed leaving even though satisfaction was low. The needs strength of other variables (i.e., commitment, self-concept, job involvement) is so great, that they outweigh the dissatisfaction variable. A compensation model would suggest that teachers remain in the job even they are dissatisfied because the rewards it provides in their personal life compensates for the dissatisfaction on the job.

Findings also indicate that teachers are much more satisfied with intrinsic rewards than the extrinsic rewards (income, hours, etc.) which they don't control. This study would contradict most other findings, and indicate that job satisfaction was low even though life satisfaction may be higher. The findings are in agreement with NEA statistics (1983) which indicate teachers were satisfied with support from principals but not satisfied with other external factors.

Commitment, Table 26. Over 84 percent of the teachers showed

Table 25.

Number of Teacher Persisters and Dropouts
by Job Satisfaction Variable
N = 515

	VERY SATISFIED	SATISFIED	DIS-SATISFIED	VERY DIS-SATISFIED
PERSISTERS	3 (0.6%)	66 (13.1%)	257 (51.2%)	4 (0.8%)
DROPOUTS	3 (0.6%)	60 (12.0%)	108 (21.5%)	1 (0.2%)

Number of Missing Observations = 13
Chi-Square = 14.63
p< .005

Table 26.

Number of Teacher Persisters and Dropouts
by Commitment Variable
N = 515

	INTEND TO BE IN OCCUPATION AT AGE 30	
	Yes	No
PERSISTERS	295 (58.3%)	38 (7.5%)
DROPOUTS	132 (26.1%)	41 (8.1%)

Number of Missing Observations = 9
Chi-Square = 13.04
p< .005

commitment to persist in teaching. The congruence of teachers' commitment and actual persistence was 58 percent. That is, 58 percent of those intending to persist did so for three years. However, stated commitment was higher than actual persistence. This reflects the expressed idealism inherent in the profession. High levels of commitment also seem somewhat inconsistent with the portrayal of the teaching profession as composed of second-choice applicants, or novices who lack training which indoctrinates them to persist.

Conclusions which can be drawn from this discussion of teachers' descriptive findings vary. It seems that teachers are implementing their high self-concept and strong commitment through their occupational choice. Teaching appears to be a profession in which intrinsic rewards can be achieved, although at the expense of job satisfaction with external factors. Increasing salary levels and reducing some of the environmental problems of the classroom may solve some teacher recruitment and retention problems. It is highly likely that these individuals who have had intrinsic rewards met but are not job satisfied are eventually forced to exit from the profession by extrinsic factors.

If teachers are accurate in their reasons for entering the profession (intrinsic reasons), it would behoove teacher training institutions to begin dealing with these intrinsic factors. Self-concept, job involvement, locus of control and other internal factors are accurate determinants of teacher persistence, especially when considered jointly. Educators should be able to implement these in training, and thereby relate potential educa-

tors' personality traits to the demands and performance of teaching.

There also must be an increased concentration on professionalism. If the career patterns for teachers are mostly career patterns of women, and women need to accommodate to child-rearing, then school systems and training institutions must provide re-training, socialization and career continuity in order to improve performance in the classroom.

Finally, the most significant implication which these findings have is the selection function which can be met using these data. Matching applicants' traits to those of persisters would allow counselors and employers to make more accurate trainee and employee selections. The applicant would also have information regarding his or her suitability for an occupation based on the characteristics of those persistent in that occupation. This study yielded significant items on which to base teacher selection. Future research should make similar categorization possible for other occupations.

Comparison of Professions on Turnover Levels

Although the social service occupations are similar on a number of variables which distinguish turnover, the amount of that turnover is varied. Further, when combined into groups, public service occupations have 33 percent turnover while technical occupations have 49 percent turnover ($p < .01$).

The results of comparing the professions on amount of turnover were the most unexpected statistics of this study. Social service occupations encompassed both the lowest and highest amounts of turnover. When the three were combined, however, they

still had lower turnover than the technical professions. Teachers had lower than average rates of turnover, second only to nursing. Several factors may be used to explain these findings regarding levels of turnover for different occupations.

The abbreviated length of time for which individuals were followed in the work force may be the most salient factor. The average turnover rate from 1975 to 1980 was around 10 percent for the entire work force (Mobley, 1982), while the average for the group of occupations under study was 37 percent. This supports the notion of high degree of turnover at early career stages. Also, the age of the cohort was quite young (21 to 25 years old), and in their first full-time employment, so the turnover level was most likely at the highest stages for these professions.

Typical employment patterns must be considered in light of the gender differences reflected in the study. Teaching and nursing in this century have been predominantly female-dominated occupations. This has created a certain situational phenomenon in these professions--that the woman will exit from the profession for child-rearing and re-enter the labor force when her child enters school. The change in this phenomenon has occurred as women have chosen to postpone having children until they are older and remain out of the work force for a shorter period of time. This may be one of the underlying reasons for the low amount of turnover in nursing and teaching.

The new trend is to remain in the work force long enough to get a return on an educational investment, raising the standard of living and comfort level for the family before dropping out. It is interesting to note that although the amount of turnover

for both genders was almost the same over this period, those occupations predominantly female showed lower levels of turnover. It will be a phenomenon worthy of much research to guage women's future life style changes and work commitment along with the differences these changes create in occupations.

Another way of explaining differences in turnover is that males are involved in more risk-taking, moving from one occupation to another. This exploratory turnover lends itself better to those professions which 1) are in demand, 2) which have a technology that is adaptive and experiencing growth or change and 3) that is similar across situations. This describes better the technical professions rather than social service where organizational commitment and knowledge of specific situations are important.

Another labor market function as an explanation for turnover is that expectations of engineers and computer scientists is high as a result of demand. Beginning salaries are attractive, and it is not until individuals are employed that they realize that their salary expectations will not be met in the long run. Often, the job is unchallenging and the salary level may remain the same. The fact that they move up and/or out of the occupation indicates their adaptability, often their aptitude and higher achievement levels. Also, SES has been shown in this study to be a determinant of who leaves--the higher the SES, the more likely the individual is to leave. There is a greater concentration of higher SES in the technical professions, and therefore those individuals may be more likely to be non-persisters. In contrast, social service professions have limited adap-

tability (Edelwich & Brodsky, 1980). Without retraining, there are few other lucrative positions which a teacher or nurse can readily obtain.

A further discussion of the reasons for the disparity between turnover for teachers, nurses and social workers is that the period was one of disillusionment and cutbacks in social service professions (Galper, 1980). While demand for nurses was rising or remaining at constant levels, budget cuts for teachers and social workers were drastic in some areas. Teaching was a declining business in this period.

A final conclusion regarding turnover levels is that teachers simply show higher persistence than do those persons in technical occupations. Professional commitment may become not only a question of remaining on the job, but of attitude or job involvement. Teachers may not have a high level of turnover, but may have a more consistent level over time. Individuals may be as likely to exit from the profession at any stage of the career as at the beginning (Porter and Steers, 1973). However, if early dropout is the norm for teachers as it is in other occupations then teaching in the long run may have much lower levels of turnover than other occupational groups.

The present findings indicate that individuals in the technical professions are much more able to accurately estimate their turnover, while individuals in social service professions are not as able to predict their turnover. Those entering technical occupations may have the market function in their favor and be able to move positions more readily. This fact may be accepted and promoted as one of the benefits of entering the occupation,

anticipating this amount of turnover to "get new blood." In contrast, social service professions emphasize loyalty to the organization and the client; continuity may be a requisite in these organizations.

Another conclusion is that individuals in technical professions may be more realistic and aware of the possibility of changing jobs. The prohibition against entering a profession expressly for the money or easy hours is much greater for social service occupations than it is for technical occupations. Those individuals in social service occupations are often expected to have altruistic reasons for entering the profession.

Finally, the decline in commitment from 1976 to 1979 foreshadows the increased dropout that occurs in teaching at three to five years of employment. After this time period, dropout rates rise as the effectiveness of the teacher decreases. Early optimism typically gives way to lowering of commitment.

Molnar and DeLauretis (1973) found that dropouts typically had none of the traits or common interests peculiar to those who persist in the profession. This indicates the possibility of actually matching persons with occupations by virtue of their individual characteristics. The general findings indicate that extrinsic rather than intrinsic rewards are the strongest determinants of turnover for five of the six professional groups. Professionals have the freedom to initiate work or become involved with projects which yield the intrinsic rewards they need, while external rewards are less in their control and therefore become a matter of importance.

This hypothesis seems to apply across technical professions

and to nursing and social work, but teachers do not fit the model. Teachers' professional profiles look different from those of the other professions under study. The motivations for choosing teaching and for persisting seem to be different from others examined. Further research on teacher characteristics and determinants of turnover would yield a more accurate picture of who should be encouraged or chosen to enter the teaching field. More research is necessary to isolate the characteristics relevant in this study and apply them in selection situations.

Model Testing

One of the results of this research was the testing of a multivariate model of turnover emphasizing internal factors as determinants of turnover behavior. The mixed findings lead to several conclusions regarding the model.

The model did lend support to the hypothesis that internal factors are better predictors of turnover than are external factors. This is generalizable only in cases of combined occupational groups, or to social service groups. When analysis is limited to separate groups of professionals, different evidence emerges. The model does not fit so well with technical occupations, as their strongest predictive variables are income and external factors. One recommendation for further research would be the development of an revised model in which extrinsic variables are considered the primary determinants of turnover.

Another function fulfilled in this model testing was the use of a large number of subjects and multivariate analysis to test the hypotheses. Effective multivariate studies yield more generalizable results and are able to test more reliably the model's

predictive strength.

The need to implement a more reliable model is evident. Sixty-three percent of the respondents were correctly classified in this analysis. Although not highly conclusive, results may provide better classifications than are now possible by career counselors and employers. Longitudinal studies are necessary to test placement by individual external and internal traits. The interactive effect of a number of variables was evident in this research and further testing of this model may yield other occupations for which the variables can predict turnover.

Implications

Occupational turnover may be predicted from the group of variables examined in this study. It is not this prediction which seems to have the greatest implications, but that the occupations differ on the variables which figure most highly in the turnover decision. If professional groups are different, it would imply the need to treat them differently in research, job counseling, and selection. The counseling of individuals should consider traits which are shown to distinguish persistent from non-persistent employees.

Intrinsic and extrinsic determinants distinguish between persisters and non-persisters. This implies the need to provide counseling which involves the whole person in career choice. That is, selection involves not just grade averages, aptitude, and such external measures, but internal traits such as locus of control, commitment, and expectancy. Employers, career counselors and others involved with matching individuals to jobs must define the various intrinsic and extrinsic rewards and require-

ments of each occupation.

The greatest implication of this study is the selection function which is made possible through analysis of individual traits. Matching individual characteristics with persistent or non-persistent employee traits will add reliability to the employer's or program counselor's decision of who should be hired or admitted to preparatory programs.

It would appear that teachers have traits which distinguish them from the other professionals. That teachers are different is no surprise. The history of the development of the American teaching profession is unique, and may have created a profession which must have its own research, and models for understanding its functions. What is most evident is that research must be aimed at discovering teachers' internal needs structures, how to meet these needs and at the same time foster job satisfaction with external factors. Research must be invested in discovering what makes teachers leave despite high internal needs satisfaction. Teacher education programs must begin looking at internal preparation of teachers as well as at external characteristics. Further, school systems must find ways to deal with the internal development as well as the external development of teachers on their staffs.

An implication not resolved in this research, but of interest for future study is the Mobley (1982) issue of negative versus positive results of turnover. For some occupations, frequent job changing is accepted as a necessary and viable way to climb the earnings ladder. Results do not deal with whether turnover is beneficial to organizations. The results also do not

gauge the effect that turnover has on clients or those dealing with the organizations in question.

One assumption of this study was that instruction would be better in a school system characterized by a cadre of experienced teachers. A variety of studies would dispute this assumption. The consideration of effectiveness of workers in relation to turnover and benefits to the organization have been explored in blue-collar work settings, but less in white-collar situations. Whether tenure and effectiveness are linked in teaching and other occupations is left to be resolved by further research.

This study provides some groundwork from which further systematic examination of reasons for professional turnover can be made. Furthermore, it provides some direction in development of a model which may be useful in exploring differences between turnover in different occupations. Concerning these goals, however, more awareness of the function of professional turnover is needed.

Major conclusions of this research were: 1) that significant differences exist among some white-collar occupational groups in reasons for persisting or not persisting in the occupation, and 2) that the model of occupational turnover used in this study can serve a selection function for occupational choice both from the employer and employee standpoint.

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